REMARKS / ARGUMENTS

The present application includes pending claims 1-34. On 3-May-07, the Examiner mailed an office action rejecting claims 1-8, 11-13, 15-24, 27-29 and 31-34. Claims 1, 6, 12-13, 15-17, 22-23, 28-29 are rejected under 35 U.S.C. § 102(e). Claims 2-5, 7-8, 11, 18-21, 24, 27, 32-34 are rejected under 35 U.S.C. § 103(a). Claims 9, 10, 14, 25, 26 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1, 8, 16, and 24 have been amended, as set forth above to further clarify the language used in these claims and to further prosecution of the present application. Claims 35-40 are added new claims rewritten in independent or dependent format to address the objections of the cancelled claims 9, 10, 14, 25, 26 and 30 and to include all of the limitations of the base claims and any intervening claims as suggested by the Examiner. The Applicant submits arguments with respect to claims 1-34 and respectfully submits that the claims define patentable subject matter.

I.   REJECTION UNDER 35 U.S.C. § 102(e)

MPEP 2131 states:

> "[a] claim is anticipated only if **each and every element** as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *See* MPEP at

2131 (internal citation omitted). Furthermore, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." *See id.* (internal citation omitted).

The Proposed Crayford (US Patent No. 5,673,254) Does Not Anticipate Claims 1, 6, 12-13, 15-17, 22-23, 26-29 and 31 as unpatentable

The Applicants turns to the rejection of claims 1, 6, 12-13, 15-17, 22-23, 26-29 and 31 under 35 U.S.C. § 102(e) as being anticipated by Crayford (US Patent No. 5,673,254 hereafter Crayford).

A.   Rejection of Claims 1 and 6

With respect to claims 1 and 6 in the Office Action, the Examiner states:

> "Regarding claims 1, 6, Crayford teaches a method of providing word-level flow control in a communication system (Fig. 7), using a secondary communication channel (420) comprising: establishing a bi-directional communication link (Fiber Optical Line of Fig.7) between a first system (415_1-415_3/405, Fig. 7) and a second system (415_4-415_5/410, Fig. 7), transmitting a frame of data from the first system to a second system (column 6, lines 31-32); and suspending the transmission of the frame of data without waiting for the end of the frame when the first system receives a stop transmission request embedded in a secondary communication channel between the second system and the first system (column 6, lines 30-45 and column 14, lines 51-59)". (See the Office Action at pages 2-3).

The Applicant traverses the assertion by the Examiner that Crayford teaches "...using a secondary communication channel (420) comprising: establishing a bi-directional communication link (Fiber Optical Line of Fig.7)...".

With regard to the rejection of independent claim 1 under 102(e), the Applicant submits that Crayford does not disclose or teach at least the limitations of "**suspending the transmission of the frame of data without waiting for the end of the frame when the first system receives a stop transmission request embedded in a secondary communication channel** between the second system and the first system" as recited by the Applicant's amended independent claim 1.

The Applicant submits that Crayford teaches creating a half duplex collision condition to a transmitting station upon reading the flow control signal within the packet transmission within an "in-window" slot time (or before the "in-window" time slot expires). Crayford further teaches using a PHY (electronic circuit in the physical layer of the OSI model) for **buffering the received flow control signal** within the packet transmitted by the station transmitter (such as a Media Access Controller - MAC) and wait for **sending the packet transmitted in the next transmission** if the received flow control signal was received into the PHY after the "in-window" slot time in a previous transmission.

Therefore the teaching of buffering the **received flow control signal** after the "in-window" slot time in a previous transmission and wait for the next packet transmission to apply collision to the station transmitter (MAC) contradicts the teaching of "suspending the transmission of the frame of data **without waiting** for the end of the frame **when the first system receives a stop transmission**

request" as recited in claim 1 by the Applicant. This argument is explained by

Crayford's teachings, which are cited as follows.

Firstly, Crayford teaches using the same flow control packet to create a half

duplex collision, a condition that must occur within an "in-window" or the normal

slot time of 512 bit times. More specifically, Crayford at col 6, lines 41-50, states:

> "since the same type of flow control packet can be utilized to either
> alter a full duplex station's transmit characteristics, or to block a half
> duplex station's transmission attempt due to creation of a collision
> condition (simultaneous transmit and receive operation). The
> disadvantage of this scheme is that by using the reception of the
> flow control packet at the station, to essentially generate the same
> condition as a half duplex collision, means that the collision must
> occur within the normal slot time of 512 bit times (an "in-window"
> collision)."

Hence, Crayford establishes the requirement of an "in-window" time

slot flow to receive flow control information.

Secondly, the Applicant submits that Crayford teaches embedding a

message or a code group as flow control information within the packet

transmission. More specifically, Crayford at col 7, lines 36-38, states:

> "the detection of the flow control packet (which may optionally
> contain either a special preamble, SFD or a particular data
> pattern)."

Furthermore, Crayford col 7, lines 54-57 states:

> "reserved control code groups are used to transfer flow control
> information between stations. Again, this can be used in concert
> with half duplex stations."

Hence, Crayford establishes that the flow control information is embedded within the packet transmission.

Thirdly, the Applicant submits that Crayford illustrates an example of an "in-window" collision flow control using an implementation of a flow control code group such as a "XOFF" message as flow control information within the packet transmission. Specifically, Crayford describes using a PHY to receive the "XOFF" message and to generate an "in-window" collision (to block packet transmission). More specifically, Crayford at col 8, lines 5-7, states:

> "The PHY receives the XOFF message, and generates the collision using the MII COL indication in the normal way."

Hence, Crayford establishes generating a half duplex collision flow control by the PHY upon receiving a flow control message in the packet transmission by the PHY.

Fourthly, the Applicant submits that Crayford in the same example teaches using the PHY to monitor transmit activity of the transmitting station (a Media Access Controller or MAC). The PHY applies an "in-window" collision as flow control to the transmitting station – the MAC, if a XOFF message within the packet transmitted by the MAC is received by the PHY during an "in-window" slot time. Crayford teaches that if the MAC detects a "collision" sent by the PHY within the same "in-window" slot time of current packet transmission (i.e. the PHY receives the XOFF message within the current packet transmitted during the same "in-

window"), the MAC backs off packet transmission. If the PHY receives the XOFF

message within the current packet transmitted by the MAC **after** the same "in-

window" slot time, the PHY will buffer **the received XOFF message** (flow control

indicator) from the current packet transmission until the start of a **next packet**

transmission by the MAC. Crayford, at col 8 lines 23-30 states:

> "since the PHY can monitor the transmit activity, and only apply the flow control XOFF signal (for instance) when the transmitting MAC is within the slot time. In this manner, the transmitting MAC will detect the "in-window" collision and backoff, scheduling a retry interval as appropriate. If the XOFF indication is received after the slot time has expired, the PHY can delay the collision indication until the next transmitted packet."

See also Crayford col 15 lines 63-67, states:

> "if the flow control indicator is received after the late collision threshold, the PHY buffers the indication, until the start of the next packet transmission. In this way, the next packet transmission experiences an apparent "in-window" collision, and backs off normally."

Hence, the PHY delays the collision indication so that the MAC

would experience an apparent "in-window" collision in order to sync up with the "in-

window" slot time requirement by the PHY.

Therefore, based on the above citations, the Applicant respectfully

submits that Crayford's teaching of buffering a received flow control indicator after

a "in-window" slot time (i.e. the XOFF message received from an earlier packet

transmitted during earlier "in-window" slot time) and generating an apparent "in-

window" collision until the start of the next packet transmission contradicts to the

teaching of "suspending the transmission of the frame of data without waiting for the end of the frame when the first system receives a stop transmission request" as recited in the independent claim 1 by the Applicant.

Furthermore, the Applicant submits that no where does Crayford disclose or teach a "stop transmission request embedded in a secondary communication channel" as recited in the independent claim 1 by the Applicant.

Accordingly, Applicant's independent claim 1 is not anticipated by Crayford and therefore is allowable based on a lack of teaching on "suspending the transmission of the frame of data without waiting for the end of the frame when the first system receives a stop transmission request" and also a lack of teaching on "a stop transmission request embedded in said secondary communication channel between the second system and the first system". Dependent claim 6 depends from claim 1 and is respectfully submitted to be allowable. The Applicant reserves the right to argue additional reasons beyond those set forth herein to support the allowability of claims 1 and 6 should such a need arise.

B.   Rejection of dependent Claims 12, 13, 15 and 16

Claims 12, 13, 15 and 16 depend from independent claim 1, and are, consequently, also respectfully submitted to be allowable for at least the same rationale as in claim 1.

C. Rejection of Claims 17 and 23

The Examiner states in the Office Action in claims 17 and 23:

> "Crayford teaches a method of providing flow control in a communication system comprising (Fig. 7): establishing a bi-directional communication link (420) with a remote system; and embedding flow control data in a secondary communication channel of the communication link (col 14, lines 51-59); 420 of Fig. 7) for use by a primary communication channel of the communication link (communication link between collision domain and switch 405 of Fig. 7 corresponds to the claimed primary channel)."

(See the Office Action at page 3)

With regard to the rejection of independent claim 17 under 102(e), the Applicant submits that Crayford no where discloses or teaches the limitation of **"embedding flow control data in a secondary communication channel** of the communications link **for use by a primary communication channel** of the communications link" as recited by the Applicants in the independent claim 17.

In addition, the Applicant submits that **"the communication link"** antecedent basis of both "a secondary communication channel of **the communication link"** and "a primary channel of **the communication link"** refers back to the **"bidirectional communications link"** in claim 17. Therefore, applying the Examiner's argument in the Office Action stating that **"the communication link** between collision domain and switch 405 of Fig. 7 corresponds to the claimed **primary channel"** would contradict to the antecedent basis of "a primary channel of **the communication link"** or "a secondary

communication channel of **the communication link**" recited in the independent claim 17.

Furthermore, based on the context of the Applicant's antecedent basis of claim 17 that "the communication link" refers back to the **"bidirectional communications link"**, applying "the communication link between the collision domain and switch 405 corresponding to the primary channel" as suggested by the Examiner would equate or substitute the "communication link between the collision domain and switch 405" to the **"bidirectional communications link (420)"** in Fig. 7 of Crayford. Such argument stated in the Office Action will render the Network 400 in Fig. 7 of Crayford inoperable since the half duplex communication link between the collision domain and switch 405 would become the full duplex fiber optic link 420 – contrary to the teaching of Crayford.

Accordingly, the Applicant's independent claim 17 is not anticipated by Crayford and therefore is allowable based on lack of the teaching of "embedding flow control data **in a secondary communication channel of the communications link for use by a primary communication channel of the communications link**" as recited by the Applicants in the independent claim 17. Dependent claim 23 depends from claim 17 and is respectfully submitted to be allowable. The Applicant reserves the right to argue additional reasons beyond those set forth herein to support the allowability of claims 17 and 23 should such a need arise.

D.   Rejection of dependent Claims 22, 28, 29 and 31

Claims 22, 28, 29 and 31 depend from independent claim17, and are, consequently, also respectfully submitted to be allowable for the same rationale as in claim 17.   The Applicant reserves the right to argue additional reasons beyond those set forth herein to support the allowability of dependent claims 22, 28, 29 and 31 should such a need arise.

II.   The Proposed combination of Crayford (US Patent No. 5,673,254) and Kryzak Does Not Render Claims 2-5, 7-8, 11, 18-21, 24, 27, and 32-34 unpatentable

The Applicant now turns to the rejection of claims 2-5, 7-8, 11, 18-21, 24, 27, and 32-34 under 35 U.S.C. § 103(a) as being unpatentable over Crayford (US Patent No. 5,673,254) in view of Kryzak et al. (US Patent No. 6,700,510).

REJECTION UNDER 35 U.S.C. § 103

In order for a *prima facie* case of obviousness to be established, the Manual of Patent Examining Procedure ("MPEP") states the following:

> First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine the teaching. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of

> success must both be found in the prior art, and not
> based on applicant's disclosure.

See MPEP at § 2142, citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) (emphasis added). Further, MPEP § 2143.01 states that "the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art suggests the desirability of the combination," and that "although a prior art device 'may be capable of being modified to run the way the apparatus is claimed, there must be *a suggestion or motivation in the reference* to do so'" (citing In re Mills, 916 F.2d 680, 16 USPQ 2d 1430 (Fed. Cir. 1990)). Moreover, MPEP § 2143.01 also states that the level of ordinary skill in the art cannot be relied upon to provide the suggestion...," citing Al-Site Corp. v. VSI Int'l Inc., 174 F.3d 1308, 50 USPQ 2d 1161 (Fed. Cir. 1999). Additionally, if a *prima facie* case of obviousness is not established, the Applicant is under no obligation to submit evidence of nonobviousness.

> The examiner bears the initial burden of factually
> supporting any *prima facie* conclusion of obviousness.
> If the examiner does not produce a *prima facie* case,
> the applicant is under no obligation to submit evidence
> of nonobviousness.

See MPEP at § 2142.

E.   Rejection of dependent Claims 2

With regard to the rejection of dependent claim 2 under 103(a), the Examiner states:

> "Crayford teaches all the claimed limitations as previously discussed with respect to claim 1 above but fails to explicitly teach that the word level command is based on reversed running disparity coding. However, Kryzak discloses that the word level command is based on reversed running disparity coding (See Kryzak column 6, lines 29-34). Therefore, it

would have been obvious to one of ordinary skill in the art at
the time the invention was made to incorporate the teachings
of Kryzak into the system of Crayford in order to reduce
delay." (See the Office Action in page 4-5)

The Applicant submits that although Kryzak teaches the use of disparity in
encoding, Kryzak does not specifically disclose or teach reversed running disparity
coding. Accordingly, the Examiner's proposed combination of Crayford and
Kryzak does not render dependent claim 2 unpatentable, and a *prima facie* case of
obviousness has not been established.

In addition, dependent claim 2 depends from independent claim 1,
respectively, and is allowable for the same rationale as in claim 1, consequently,
also respectfully submitted to be allowable. The Applicant reserves the right to
argue additional reasons beyond those set forth herein to support the allowability
of dependent claims 2 should such a need arise.

F.   Rejection of dependent Claims 3-5, 7-8, 11, 18-21, 24, 27

Dependent claims 3-5, 7-8 and 11 depend from independent claim 1, and
dependent claims 18-21, 24 and 27 depend from independent claim 17
respectively, and are allowable for the same rationale as in claim 1 and 17,
consequently, also respectfully submitted to be allowable. The Applicant reserves
the right to argue additional reasons beyond those set forth herein to support the
allowability of dependent claims 3-5, 7-8, 11, 18-21, 24, 27 should such a need
arise.

G. Rejection of independent Claims 32

With regard to the rejection of dependent claim 2 under 103(a), Examiner

states that:

> "Crayford teaches a system providing word-level flow control comprising (Fig. 5): a controller (110) operably coupled to a full-duplex communication link (M11 of Fig. 5); wherein the secondary communication channel includes a word level coding, and the system stops transmission of data without waiting for the end of the packet in response to word level commands received on the secondary communication channel (col 6, lines 30-45 and col 14, lines 51-59).
>
> Crayford differs from the claimed invention in that Crayford does not explicitly discloses wherein the controller includes an encoder that encodes a secondary channel, and a decoder that decodes a received communication channel. However, Kryzak discloses controller includes an encoder that encodes a secondary channel, and a decoder that decodes a received communication channel (col 3, lines 29-30 and col 4, lines 12-20). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Kryzak into the system of Crayford in order to reconstruct the original information." (See the Office Action page 7)

The Applicant submits that no where the combination of Crayford and

Kryzak disclose or suggest at least the limitations of the element **"an encoder**

that encodes a secondary communication channel" and the limitation of "said

system stops transmission of data **without waiting for the end of a packet in**

response to word level commands received on said secondary communication

channel".

Accordingly, the Applicant submits that independent claim 32 is not rendered unpatentable, and a *prima facie* case of obviousness has not been established by combining Crayford and Kryzak and is allowable. The Applicant reserves the right to argue additional reasons beyond those set forth herein to support the allowability of independent claim 32 should such a need arise.

H.   Rejection of dependent Claims 33-34

Claims 33-34 depend from independent claim 32, and are allowable for the same rationale as in claim 32, consequently, also respectfully submitted to be allowable. The Applicant reserves the right to argue additional reasons beyond those set forth herein to support the allowability of dependent claims 33-34 should such a need arise.

I.   Objections to dependent Claims 9-10, 14, 25-26 and 30

Examiner submits that claims 9-10, 14, 25-26 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Applicant has cancelled claims 9-10, and 14, 25-26 and 30, and have written new claims 35-37, and 38-40 to include all the limitations of the base claim and any intervening claims as suggested by the Examiner. Therefore, the Applicant respectively submits that the amended claims 35-37, and 38-40 are allowable.

CONCLUSION

Based on at least the foregoing, the Applicant believes that all claims 1-34 are in condition for allowance. If the Examiner disagrees, the Applicant respectfully requests a telephone interview, and requests that the Examiner telephone the undersigned Attorney at (312) 775-8093.

The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to the deposit account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

A Notice of Allowability is courteously solicited.

Respectfully submitted,

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